

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A method for reducing the volume or rate of an encoded digital video bitstream that ~~fulfils a certain set of predefined structural rules~~ comprises both independently encoded pictures and pictures encoded using prediction from other pictures, characterized in that ~~it~~ the method comprises the steps of

-using a bitstream analyzer to separate different types of data in the encoded digital video bitstream into component bitstreams,

-partly decoding (704) independently encoded pictures and pictures encoded using prediction from other pictures from the encoded digital video bitstream, thus producing a partly decoded digital video bitstream partly decoded data from independently encoded pictures and partly decoded data from pictures encoded using prediction from other pictures,

-reducing (705) the amount of bits in the partly decoded digital video bitstream data from independently encoded pictures and partly decoded data from pictures encoded using prediction from other pictures and

-re-encoding (706) the partly decoded digital video bitstream data from independently encoded pictures and partly decoded data from pictures encoded using prediction from other pictures in which the amount of bits is reduced, thus producing a re-encoded digital video bitstream, the volume or rate of which is smaller than that of the encoded digital video bitstream, that fulfils the certain set of predefined structural rules.

2. (Original) A method according to claim 1, characterized in that the step of partly decoding the encoded digital video bitstream comprises the substeps of

-separating (502) a number of variable length encoded, weighted and quantized DCT coefficient matrices from an MPEG-2-encoded digital video bitstream and

-decoding (505) the variable length coding of said variable length encoded, weighted and quantized DCT coefficient matrices, thus producing a number of weighted and quantized DCT coefficient matrices.

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3. (Currently Amended) A method according to claim 2, characterized in that the step of reducing the amount of bits in the partly decoded ~~digital video bitstream~~ data from independently encoded pictures and partly decoded data from pictures encoded using prediction from other pictures comprises the substep of reducing (506, 507) the number of bits used to represent said weighted and quantized DCT coefficient matrices.

4. (Original) A method according to claim 3, characterized in that the substep of reducing the number of bits used to represent said weighted and quantized DCT coefficient matrices further comprises the substep of low-pass filtering (507) a weighted and quantized DCT coefficient matrix with a filter having a certain transfer function.

5. (Original) A method according to claim 4, characterized in that the substep of low-pass filtering said weighted and quantized DCT coefficient matrices further comprises the substep of adapting said transfer function according to the contents of a DCT coefficient matrix.

6. (Original) A method according to claim 3, characterized in that the substep of reducing the number of bits used to represent said weighted and quantized DCT coefficient matrices further comprises the steps of

-defining a number of coefficient groups within a DCT coefficient matrix and
-low-pass filtering each of said coefficient groups with a filter having a certain transfer function associated with the coefficient group in question.

7. (Original) A method according to claim 6, characterized in that the substep of low-pass filtering each of said coefficient groups further comprises the substep of adapting said transfer function according to the contents of the coefficient group in question.

8. (Original) A method according to claim 7, characterized in that the substep of adapting said transfer function according to the contents of the coefficient group in question further comprises the substeps of

- finding the coefficient that represents the highest signal energy within the coefficient group,
- defining a certain first variable value by referring to the location of said coefficient that represents the highest signal energy within the coefficient group and
- scaling said transfer function with said first variable value, thus producing a modified transfer function which has a pass band the width of which is greater the further said coefficient that represents the highest signal is in the DCT coefficient matrix from the DC coefficient of that DCT coefficient matrix.

9. (Original) A method according to claim 3, characterized in that the substep of reducing the number of bits used to represent said weighted and quantized DCT coefficient matrices further comprises the substep of requantizing (506) a weighted and quantized DCT coefficient matrix by dividing all coefficients contained therein by a certain second variable value.

10. (Original) A method according to claim 9, characterized in that it further comprises the steps of

- separating (502) from said MPEG-2-encoded digital video bitstream a piece of information describing a weighting matrix which has been used to weight a number of variable length encoded, weighted and quantized DCT coefficient matrices and

-modifying (509) said piece of information describing a weighting matrix, in order to compensate the division of coefficients by a certain second variable value, thus causing a multiplication of said weighting matrix by said second variable value.

(Original)
11. A method according to claim 3, characterized in that the step of re-encoding the partly decoded digital video bitstream comprises the substep of variable length coding (508) the DCT coefficient matrices after reducing the number of bits used to represent said DCT coefficient matrices.

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12. (Original) A method according to claim 2, characterized in that in order to complement the step of reducing the amount of bits in the partly decoded digital video bitstream it comprises the substeps of

-separating (502) a number of virtual buffer verifier values from said MPEG-2-encoded digital video bitstream and

-modifying (510) said virtual buffer verifier values, thus producing modified virtual buffer verifier values that are in accordance with the re-encoded digital video bitstream the volume or rate of which is smaller than that of the encoded digital video bitstream.

13. (Currently Amended) An arrangement for reducing the volume or rate of an encoded digital video bitstream that ~~fulfils a certain set of predefined structural rules~~ comprises both independently encoded pictures and pictures encoded using prediction from other pictures, characterized in that it the arrangement comprises:

-a bitstream analyzer arranged to separate different types of data in the encoded digital video bitstream into component bitstreams,

-means for partly decoding (502, 505) independently encoded pictures and pictures encoded using prediction from other pictures from the encoded digital video bitstream,

-means for reducing (506, 507) the amount of bits in ~~the partly decoded digital video bitstream~~ partly decoded data from independently encoded pictures and partly decoded data from pictures encoded using prediction from other pictures and

-means for re-encoding (508) the partly decoded ~~digital video bitstream~~ data from independently encoded pictures and partly decoded data from pictures encoded using prediction from other pictures in which the amount of bits is reduced.

14. (Original) An arrangement according to claim 13, characterized in that it comprises

B? -a bitstream analyzer (502) arranged to separate a number of variable length encoded, weighted and quantized DCT coefficient matrices from an MPEG-2-encoded digital video bitstream,

-a variable length decoder (505) for decoding the variable length coding of said variable length encoded, weighted and quantized DCT coefficient matrices and

-means for reducing (506, 507) the number of bits used to represent said weighted and quantized DCT coefficient matrices.

15. (Original) An arrangement according to claim 14, characterized in that said means for reducing the number of bits used to represent said weighted and quantized DCT coefficient matrices comprise a filtering block (507) for filtering the coefficients contained in DCT coefficient matrices.

16. (Original) An arrangement according to claim 15, characterized in that said filtering block (507) is a low pass filter with a certain transfer function.

17. (Original) An arrangement according to claim 16, characterized in that said low pass filter (507) has a transfer function which is dependent on the contents of the DCT coefficient matrix which is filtered.

18. (Original) An arrangement according to claim 15, characterized in that said filtering block (507) is arranged to implement a multitude of different filtering functions upon different coefficient groups within a single DCT coefficient matrix.

19. (Original) An arrangement according to claim 18, characterized in that said filtering block (507) is arranged to implement a multitude of different filtering functions upon different coefficient groups within a single DCT coefficient matrix, wherein each filtering function is dependent on the contents of the coefficient group which is filtered.

B' 20. (Original) an arrangement according to claim 14, characterized in that said means for reducing the number of bits used to represent said weighted and quantized DCT coefficient matrices comprise a requantization block (506) arranged to divide a DCT coefficient matrix by a certain second variable value.

21. (Original) An arrangement according to claim 14, characterized in that it comprises

- an input (501) and an output (504),
- a bitstream analyzer (502) coupled to said input (501), said bitstream analyzer having first, second, third and fourth data outputs and a control output,
- a multiplexer (503) coupled to said output (504), said multiplexer having first, second, third and fourth data inputs and a control input,
- an essentially direct connection from the control output of said bitstream analyzer (502) to the control input of said multiplexer (503),
- an essentially direct connection from the first data output of said bitstream analyzer (502) to the first data input of said multiplexer (503),
- between the second data output of said bitstream analyzer (502) and the second data input of said multiplexer (503) a series connection where a variable length decoder (505) is coupled to the second data output of said bitstream analyzer (502), a variable length re-encoder (508) is coupled to the second data input of said multiplexer (503), and between said variable length decoder (505) and said variable length re-encoder